Medical–Biological
Research & Technologies

MR-1
Mini-Rocker Shaker

Operating Manual
Certificate

for version
V.2AW

Contents

1. Safety precautions

The following symbols mean:

Caution! Make sure you have fully read and understood the present Manual before using the equipment. Please pay special attention to sections marked by this symbol.

GENERAL SAFETY

- Use only as specified in the operating manual provided.
- The unit should be saved from shocks or drops.
- The unit must be stored and transported in a horizontal position (see package label).
- After transport or storage in humid conditions keep the unit under room temperature for 2-3 hrs before connecting to electric circuit.
- Use only cleaning and decontamination methods recommended by the manufacturer.
- Do not make modifications to the design of the unit.

ELECTRICAL SAFETY

- Connect only to a power supply with voltage corresponding to that on the serial number label.
- Only use the external power supply unit provided with this product.
- Ensure that the power switch and external power supply are easily accessible during use.
- Disconnect the unit from the electric circuit before moving.
- Turn off the unit by disconnecting the external power supply unit from the power socket.
- If liquid penetrates into the unit, disconnect it from the external power supply and have it checked by a competent person.
- Do not operate the unit in premises where condensation can form. Operating conditions of the unit are defined in the Specifications section.

DURING OPERATION

- Do not impede the platform motion.
- Do not operate the unit in environments with aggressive or explosive chemical mixtures. Please contact manufacturer for possible operation of the unit in specific atmospheres.
- Do not operate the unit if it is faulty or has been installed incorrectly.
- Do not use outside laboratory rooms.
- Do not place a load exceeding the maximum load value mentioned in the Specifications section of this Manual.

BIOLOGICAL SAFETY

- It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on or penetrates into the equipment.

2. General Information

MR-1 Mini-Rocker Shaker has been upgraded to provide reliable continuous operation. Non-stop mode up to 7 days and over 2 years of trouble-free operation are guaranteed due to of direct drive mechanism and brushless motor. Platforms are equipped with non-slip, thermoresistant silicone mat.

MR-1 Mini-Rocker Shaker provides regulated gentle rocking motion for mixing of samples in vessels placed on the platform.

Shaker MR-1 provides:

- Soft rocking of the platform with a constant amplitude
- Smooth regulation of the rocking speed
- Indication and setting of the operating time
- Automatic stop of platform movement after the set time expires
- Interruption of the operation at any moment
- The display of the current operation time.

MR-1 is an extremely quiet compact shaker that can be easily placed in confined work spaces. The shaker is designed for mixing of samples in Petri dishes, plates and tubes.

MR-1 is ideal for minigel destaining after electrophoresis, conducting reactions of northern, Southern and western blots, washes.

The device is applicable in all areas of biomedicine, biotechnology and microbiology laboratory research.

3. Getting started

3.1. Unpacking.

Remove packing materials carefully and retain for future shipment or storage of the unit. Examine the unit carefully for any damage incurred during transit. The warranty does not cover in-transit damage.

3.2. Complete set. Package contents:

Standard set

- MR-1 Mini-Rocker Shaker .....1 pce
- Detachable platform Bio PP-4S with silicone mat.....1 pce
- Silicone pad .....1 pce
- External power supply unit .....1 pce
- Operating Manual; Certificate .....1 copy

Optional accessory

- PDM dimpled mat .....on request

Dimplet mat PDM

Standard detachable Bio PP-4S platform with non-slip thermoresistant silicone mat

3.3. Set up:

- place the unit on even horizontal surface;
- remove protective film from display;
- plug the external power supply unit into the 12 V socket at the rear side of the unit.

3.4. Install the platform fitting the pins on the bottom side of the platform into the holes on the moving base.

4. Operation

4.1. Connect the external power supply unit to electric circuit.

4.2. Place samples on the platform.

4.3. Switch **On** the **Power** switch (Fig.1/1) (the timer display (Fig.1/3) will light).

4.4. Using the ▲ and ▼ keys (Fig.1/4) set the working time. The set time is displayed on the Timer indicator in hours and minutes (hh:mm).

4.5. Press the **Start** key (Fig. 1/2). The platform will start rocking movement and the timer will start counting up the set time interval. Timer display shows actual elapsed time: until 1 hour – in minutes and seconds (mm:ss), after 1 hour – in hours and minutes (hh:mm).

4.6. Set the shaking speed as recommended, using the **Speed** knob (Fig 1/6)

4.7. After the set time interval expires the platform movement will stop and the set working time will be shown on the timer display.

4.8. Press the **Start** key to repeat operation with the same working time and speed.

4.9. The unit can be stopped before the set time elapses if necessary by pressing the **Stop** key (Fig. 1/5). For 20 seconds the time indicator will be showing the time the shaker has worked, and after that it will be showing the set time.

4.10. Pressing the **Stop** key for more than 3 s resets the set time.

4.11. If the working time is not set (or reset) and the display shows 0:00, pressing the **Start** key will start time indication and will cause the unit to operate non-stop until the **Stop** key is pressed.

4.12. After finishing the work turn the **Power** switch to the **Off** position. Disconnect the external power supply unit from electric circuit.

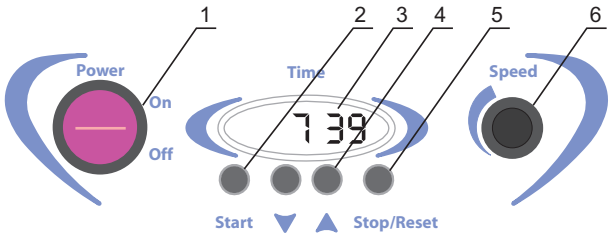

Fig.1 Control panel

5. Specifications

The unit is designed for operation in cold rooms, incubators and closed laboratory rooms at ambient temperature from +4ºC to +40ºC in a non-condensing atmosphere and maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

5.1. Mixing frequency range.....5–30 oscill/min
5.2. Fixed tilt angle .....7°
5.3. Digital time setting.....1 min–24 hrs/non-stop
5.4. Maximum continuous operation time .....168 hrs
5.5. Maximum load.....1.0 kg
5.6. Platform working area .....200x200 mm
5.7. Dimensions .....220x205x120 mm
5.8. Input current/power consumption.....12 V, 320 mA / 3.8 W
5.9. External power supply ..... input AC 100–240 V 50/60 Hz, output DC 12 V
5.10. Weight .....2.1 kg

* Accurate within ±10%.

Optional accessory	Description	Catalogue number
PDM	Dimpled mat to prevent different size tubes from rolling	PDM

Replacement parts	Description	Catalogue number
Bio PP-4S	Detachable platform with non-slip thermoresistant silicone mat	BS-010125-AK

Biosan is committed to a continuous programme of improvement and reserves the right to alter design and specifications of the equipment without additional notice.

6. Maintenance

6.1. If the unit requires maintenance, disconnect it from the mains and contact Biosan or your local Biosan representative.

6.2. All maintenance and repair operations must be performed only by qualified and specially trained personnel.

6.3. Standard ethanol (75%) or other cleaning agents recommended for cleaning of laboratory equipment can be used for cleaning and decontamination of the unit.

7. Warranty and Claims

7.1. The Manufacturer guarantees the compliance of the unit with the requirements of Specifications, provided the Customer follows the operation, storage and transportation instructions.

7.2. The warranted service life of the unit from the date of delivery to the Customer is 24 months. Contact your local distributor to check availability of the extended warranty.

7.3. If any manufacturing defects are discovered by the Customer, an unsatisfactory equipment claim shall be compiled, certified and sent to the local distributor address. Please visit www.biosan.lv, Technical support section to obtain the claim form.

7.4. The following information will be required in the event that warranty or post-warranty service comes necessary. Complete the table below and keep a copy for your records.

Model	MR-1 Mini-Rocker Shaker
Serial number	
Date of sale	

8. Declaration of Conformity

Declaration of Conformity

Equipment name:	**MR-1**
Type of equipment:	Mini-Rocker Shaker
Directive:	EMC Directive 2004/108/EC Low Voltage Directive 2006/95/EC RoHS 2011/65/EC WEEE 2002/96/EC & 2012/19/EU
Manufacturer:	SIA BIOSAN Ratsupites 7, build.2, Riga, LV-1067, Latvia
Applied Standards:	**EN 61326-1:** Electrical equipment for measurement, control and laboratory use EMC requirements. General requirements **EN 61010-1:** Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements **EN 61010-2-051:** Particular requirements for laboratory equipment for mixing and stirring

We declare that this product conforms to the requirements of the above Directive(s)

Signature	Signature
Svetlana Bankovska Managing director	Aleksandr Shevchik Engineer of R&D
12.06.2013 Date	12.06.2013 Date

ES-20/60
(with heating)

PSU-20i

PSU-10i

Applications:
- Microbiology
- Extraction
- Cell growing

ES-20
(with heating)

MR-12

Applications:
- Agglutination
- Extraction
- Gel staining/
  destaining

Multi Bio RS-24

Multi RS-60

Bio RS-24

Applications:
- Microbiology
- Extraction
- Cell growing

PST-60HL
(with heating)

NEW

RTS-1C

V-1

MSV-3500

MR-1

Applications:
- DNA–analysis
- Genome sequence

Multi Bio 3D

Applications:
- Agglutination
- Extraction
- Blot hybridisation
- Gel staining/destaining

PST-60HL-4
(with heating)

PST-100HL
(with heating)

NEW

TS-DW

Applications:
- ELISA analysis
- Hybridization

PSU-2T

NEW

MPS-1

NEW

CVP-2

TS-100 (with heating)
TS-100C (with heating
and cooling)

V-32

Level of liquid

10^3 ... 10^2 ml	10^1 ml	10^0 ... 10^{-3} ml
Erlenmeyer flasks and Cultivation flasks	*Petri dishes, vacutainers and tubes up to 50 ml*	*PCR plates, microtest plates and Eppendorf type tubes*